

August 7, 2002

Michael Szerlog, Task Monitor  
United States Environmental Protection Agency  
1200 Sixth Avenue, Mail Stop ECL-116  
Seattle, WA 98101

Re: Contract Number 68-S0-01-01, Technical Direction Document Number 02-05-0014  
Poles Incorporated Dioxin/Furan Sampling Trip Report

Dear Mr. Szerlog:

Enclosed please find the Trip Report completed for the Poles Incorporated Dioxin/Furan Sampling site located in Oldtown, Idaho.

If you have any questions regarding this report, please contact me at (206) 624-9537.

Sincerely,

Jeff Fowlow  
START Project Leader

Enclosure

cc: Sharon Nickels, START Project Officer, EPA, Region 10, Seattle, WA, ECL-116 (letter only)  
Dhroov Shivjiani, START Program Manager, E & E, Seattle, WA (letter only)  
Mark Woodke, START Project Manager, E & E, Seattle, WA

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**Poles Incorporated Dioxin/Furan Sampling  
Trip Report  
Oldtown, Idaho  
TDD: 02-05-0014**

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Contract: 68-S0-01-01  
August 2002

Region 10  
***START***

Superfund Technical Assessment and Response Team

Submitted To: Michael Szerlog, Task Monitor  
U.S. Environmental Protection Agency  
1200 Sixth Avenue  
Seattle, WA 98101

## TRIP REPORT

DATE: August 7, 2002

TO: Michael Szerlog, Task Monitor, On-Scene Coordinator, EPA, Mail Stop ECL-116

FROM: Mark Woodke, Project Manager, E & E, Seattle, WA

SUBJ: Poles Incorporated Dioxin/Furan Sampling Project

REF: TDD 02-05-0014

### Place Visited:

Poles Incorporated  
101 North Idaho Avenue  
Oldtown, Idaho 83822  
(208) 437-4115

### Purpose of Trip:

Collect one groundwater, one product, and five surface soil samples from the Poles Incorporated (PI) wood treating facility for polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF) analyses. This project was performed to fill in data gaps from the 2001 Integrated Assessment (IA) work performed by the Ecology and Environment, Inc. (E & E) Superfund Technical Assessment and Response Team (START) for the United States Environmental Protection Agency (EPA).

### Persons Responding:

Mark Woodke, Project Manager  
Ecology and Environment, Inc.  
2101 4<sup>th</sup> Avenue, # 1900  
Seattle, WA 98121

### Persons Contacted/Site Representatives:

Reid Tinling, President  
Poles Incorporated  
101 North Idaho Avenue  
Oldtown, Idaho 83822

Gary Go, Principal  
Idaho Hill Elementary School  
402 East Third Street South  
Oldtown, Idaho 83822

(b) (6), Resident  
(b) (6) Residence  
(b) (6)  
Oldtown, ID 83822

### Date of Trip:

June 18, 2002

## **BACKGROUND**

The Poles Incorporated (PI) facility is an active wood-treating business located within the city limits of Oldtown, Idaho, at the intersection of North Idaho Avenue and Idaho State Highway 41. The property encompasses approximately 15 acres, most of which is used for treated and untreated utility pole storage. The Idaho Hill Elementary School (School) and residences border the south side of the property and a mix of residences and small retail businesses border the west side of the property. Site features include the Treatment Plant (TP) shed (with above ground storage tanks and associated piping, pumps and control systems), thermal dip tank, office building, garage, boiler building, wood waste disposal area, peeler and pole yard (Figure 1). The TP shed, a fenced roofed structure with open sides, encloses one 10,000-gallon aboveground storage tank (AST) and three 20,000-gallon ASTs used for wood-treating oil storage. Blocks of solid pentachlorophenol (PCP) are also stored in the shed on a concrete pad. Wood preserving chemicals which have been and are currently used at this facility include a 5 % PCP in Imperial Pole Treating Oil-solution as a wood preservative in an open vat thermal treatment process. Consult the January 29, 2002, IA report for additional background information and IA project details.

## **START ACTIONS**

Due to additional concerns raised after the IA was completed, the EPA On-Scene Coordinator (OSC) determined that sample collection for PCDD/PCDF analysis was required to fully characterize the site. Seven additional samples, to be collected from predesignated locations approximating those from the IA, were authorized. For this project, the suffix "02" was added to each location to differentiate these samples from those collected from similar locations during the IA.

Surface soil sample SC02SS02 was collected at the top of a trail along the north bluff of the School overlooking the PI facility, and surface soil sample SC04SS02 was collected from the playground of the School. Surface soil sample HO01SS02 was collected from the (b) (6) residence approximately 15 feet from the south side of the house. Background surface soil sample BG01SS02 was collected from an abandoned lot near the intersection of East 7<sup>th</sup> South and Meadowdale Streets. Surface soil sample PY03SS02 was collected from the treated butt-dip pole storage area on PI property. Groundwater sample MW03GW02 was collected from the monitoring well east of the PI dip tank. Product sample TP01PD02 was collected from the PI dip tank. See Figure 1 for approximate sample locations.

Samples were collected following the Sample Plan Alteration Form approved on June 13, 2002, by

the OSC. All sample containers were certified as contaminant-free prior to use on this project. Surface soil samples were collected from 0 to 6 inches below ground surface using dedicated stainless steel spoons and 8-ounce glass sample jars. The product sample was collected by dipping an 8-ounce glass sample jar into the tank and pouring the collected sample into a separate 8-ounce glass sample jar. The groundwater sample was collected after determining the well casing volume of approximately 3.2 gallons based on approximately 20 feet of water in the 2-inch diameter well and purging three times the well volume (approximately 10 gallons) prior to sample collection. The sample was collected using a dedicated bailer and 1-liter amber glass sample jars.

## CONCLUSIONS

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are two families of structurally related organic compounds that exhibit similar physical, chemical, and to some extent, biological properties. There are 75 PCDDs (known as congeners [members of the same chemical family]) and 135 PCDFs differentiated by the number and location of chlorine atoms that are present in each congener. Numerous animal studies and in vitro experiments have established conclusively that there is a pronounced difference in the toxic and biologic effects among the congeners. Comparative studies for these congeners in animals have established that 2,3,7,8-tetrachloro dibenzo-p-dioxin (TCDD) is the most toxic PCDD/PCDF congener. Seven PCDD congeners and ten PCDF congeners exhibit 2,3,7,8-TCDD-like toxicity. The intensity of the effect of the other 16 toxic PCDD and PCDF congeners is related to the similar toxic effect of 2,3,7,8-TCDD by a factor known as the toxic equivalency factor (TEF). EPA Region 10 has adopted the 1997 World Health Organization (WHO) TEFs. Congeners without 2,3,7,8-substitution have a TEF of 0 and were not analyzed for this project. In general, assessment of human health risks resulting from exposure to dioxins/furans relies not on individual data for the isomers but on a value derived using congener-specific concentrations and TEFs, that is, the 2,3,7,8-TCDD toxicity equivalent (TEQ). The TEQ represents the toxicity-related value that combines the toxicities for all dioxin-like PCDDs/PCDFs and expresses them as a sample concentration term for only 2,3,7,8-TCDD. In other words, the concentration of the 17 congeners is expressed as a single value.

The TEQ is calculated by multiplying the measured concentration of each congener by its assigned TEF. If more than one congener is present, then the TEF-adjusted concentrations are summed, and this value is referred to as the TEQ for the sample. See Tables 1 and 2 for WHO TEFs and TEQ calculations. See Figure 1 for sample results provided as TEQ concentrations. See Appendix A for photographic

documentation of the project.

The PCDD/PCDF concentrations in soil were converted to the 2,3,7,8-TCDD TEQ, as described above, then compared to preliminary remediation goals (PRGs) defined in the EPA Office of Solid Waste and Emergency Response (OSWER) Directive, *Approach For Addressing Dioxin In Soil At Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) Sites* (1998). The OSWER Directive provides a PRG of 1,000 nanograms per kilogram (ng/kg) for 2,3,7,8-TCDD TEQ in soil that is protective of residential receptors. A PRG range of 5,000 to 20,000 ng/kg for the 2,3,7,8-TCDD TEQ is provided for cleanup of PCDD/PCDF in soil where a commercial/industrial exposure scenario is applicable. As shown in Table 1, 2,3,7,8-TCDD TEQs for samples collected at the PI site range from 0.0198 ng/kg to 675 ng/kg. Comparison of the 2,3,7,8-TCDD TEQs to PRGs for all soil samples at the PI site resulted in no exceedances of PRGs for residential or commercial/industrial receptors.

The federal Maximum Contaminant Limit (MCL) of 30 picograms per liter (pg/L) is the recommended cleanup goal for 2,3,7,8-TCDD in groundwater. The MCL applies only to the 2,3,7,8-TCDD congener and does not apply to the 2,3,7,8-TCDD TEQ (Federal Register July 17, 1992, page 31796). As shown in Table 2, 2,3,7,8-TCDD was not detected in the groundwater sample (MW03GW02) collected at the PI site; therefore, the MCL for 2,3,7,8-TCDD was not exceeded. The 2,3,7,8-TCDD TEQ of 231 pg/L for groundwater is presented in Table 2 for discussion purposes only. EPA has not developed MCLs for the other PCDD/PCDF congeners.

The dip tank product sample (TP01PD02) 2,3,7,8-TCDD TEQ was 23,979 ng/kg. This result is not comparable to the listed regulatory concentrations because it is a product sample and the regulatory concentrations provided above are applicable to environmental samples. The product 2,3,7,8-TCDD TEQ is provided for discussion purposes only. See Appendix B for the data validation memorandum and all sample results.

CERCLA hazardous substances were not detected in soil at concentrations exceeding EPA OSWER PRGs for residential and commercial/industrial receptors and 2,3,7,8-TCDD was not detected in groundwater collected from the PI site at concentrations exceeding the federal MCL.

**APPENDIX A**  
**PHOTOGRAPHIC DOCUMENTATION**

**APPENDIX B**  
**DATA VALIDATION MEMORANUM AND ANALYTICAL RESULTS**